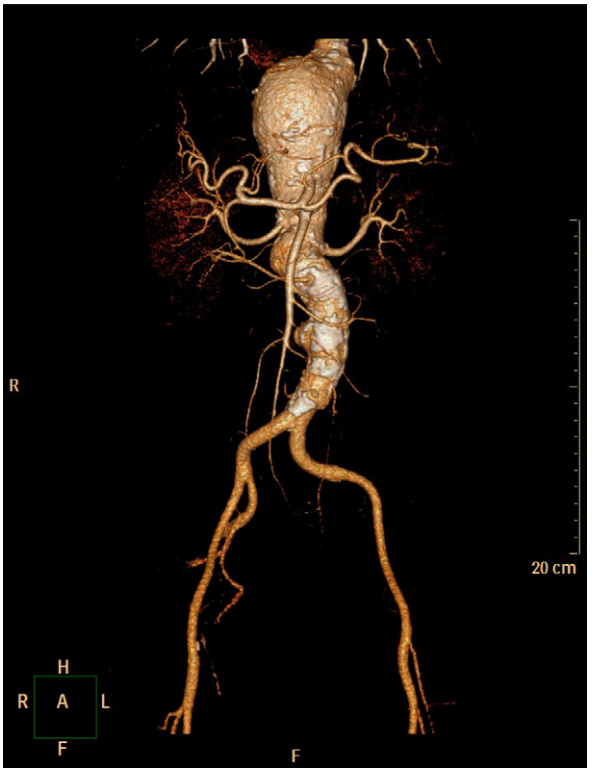

Fig 1.

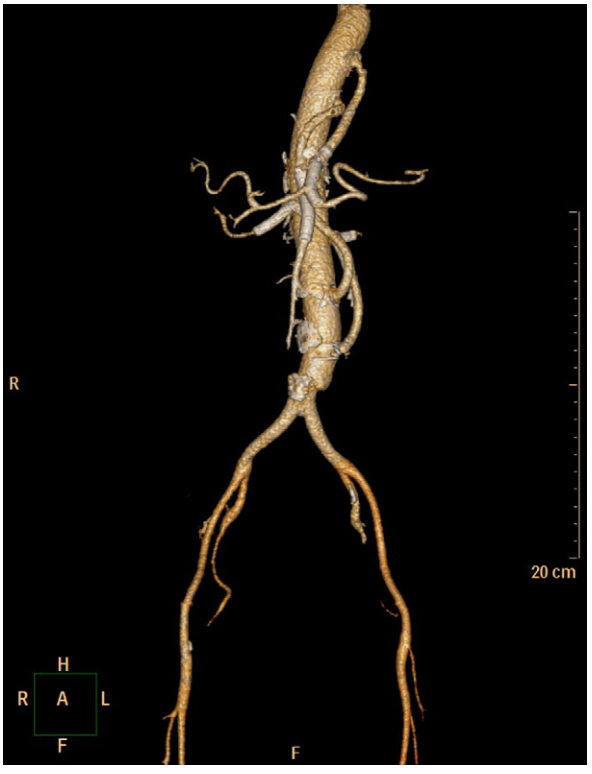

Fig 2.

Methods: A 56-year-old woman presented with a 6-cm TAAA type 3. We discussed the treatment options with the patient and decided to proceed with open repair. Under general anesthesia and after inserting a cerebrospinal fluid drain, through a left lateral incision at eighth intercostal space, aortic exposure was done with isolation of proximal and distal aorta, both renals, the CA, and SMA. On the back table, four holes were created in the side of a 20-mm tube polytetrafluoroethylene graft. The four Gore HVGs were sutured and marked to this tube graft with their Viabahn component not deployed yet. After clamping and creating the proximal aortic anastomosis, the graft was stretched, and each Gore HVG was inserted for 2 cm into both renal arteries, into the SMA, and finally, the CA through the ostiums. Each graft was secured with couple of tacking stitches to the native wall of the aorta to prevent stents from pulling out of these arteries. Finally, distal anastomosis was created at the aortic bifurcation. For each of the above arteries, it took ~2 minutes to establish blood flow, with total ischemia time of 30 minutes until we had renal and mesenteric flow.

Results: Postoperatively patient had normal renal and liver function and started tolerating an oral diet on day 4. Her postoperative course was complicated by brief period of intensive care unit psychosis, probably related to alcohol withdrawal and urinary tract infection. The patient was discharged home on postoperative day 10. A computed tomography angiogram at 3 months showed successful repair of the aneurysm with patent bypasses to the renal arteries, the SMA, and the CA.

Conclusions: Open repair of TAAA can be associated with high morbidity and mortality, especially in cases of mesenteric or renal ischemia. Using the GORE HVG as a premade graft can decrease need for visceral perfusion and decrease postoperative complications from visceral and renal ischemia. We propose that also the use of Viabahn stent may decrease incidence of anastomotic stenosis. Any stenosis at the ostium of these arteries may limit this technique. Further testing of this new technique will be applied for future patients for more validation.

Perioperative Arteriovenous Fistula and Pseudoaneurysm After Plantar Fascia Release: Diagnosis and Intervention

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Introduction: Acquired arteriovenous fistulas are historically attributed to penetrating injuries, most commonly to the extremities. However, iatrogenic arteriovenous fistulas are becoming more prevalent. We discuss the case of a patient presenting with an acquired arteriovenous fistula and pseudoaneurysm after a plantar fascia release of the foot.

Methods: A healthy 50-year-old white man presented with a 6-month history of swelling, numbness, and pain in his right foot. The patient previously underwent right foot surgery for recurrent, severe plantar fasciitis. Postoperatively, he underwent two hematoma drainage attempts in the office, each time aspirating syringes of blood without resolution of symptoms and recurrent swelling. He subsequently presented to vascular surgery for evaluation. On physical examination, a bruit was auscultated on the medial plantar aspect of the right foot. In addition, the foot demonstrated signs of swelling and venous congestion. An arterial duplex revealed a large pseudoaneurysm (Fig). The patient was subsequently scheduled for an arteriogram and intervention. The arteriogram revealed a pseudoaneurysm and arteriovenous fistula, which correlated with the duplex examination. The plantar branch of the posterior tibial artery containing the abnormality was selected with a 0.018-inch catheter. Coil embolization of the feeding artery was performed in combination with direct thrombin injections under ultrasound

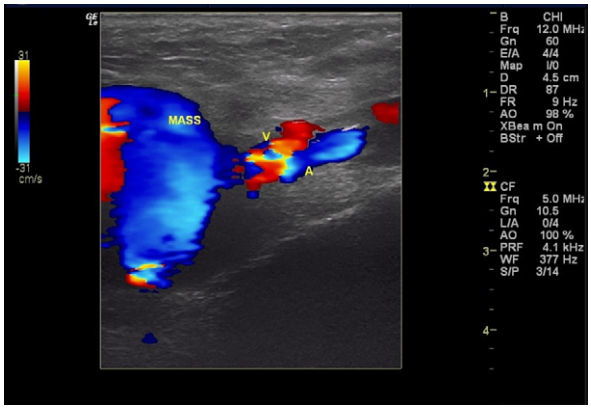

Fig 1.

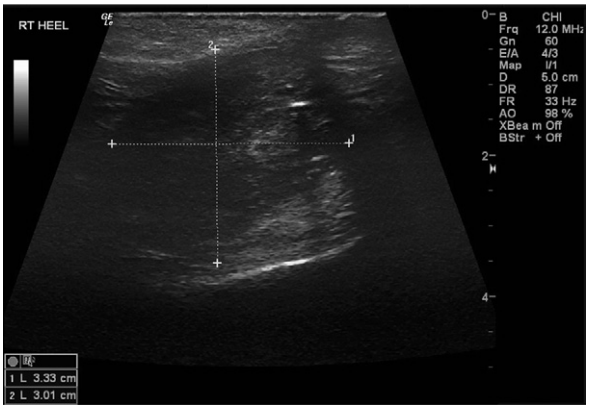

Fig 2.

guidance. At the end of the procedure, minimal flow was demonstrated and the foot was wrapped with a pressure dressing.

Results: The patient was seen back on postoperative day 5 with a repeat duplex. The right foot duplex revealed no evidence of residual flow within the pseudoaneurysm. The patient reports he is ambulating without difficulty, and the swelling, numbness, and pain have resolved. He was released to perform normal activity.

Conclusions: Traditional treatment of acquired arteriovenous fistula requires open operative repair. More commonly, an endovascular approach can be safe and effective in the treatment of acquired arteriovenous fistulas and pseudoaneurysms involving the foot.

Fetal Demise due to Uterine Trauma With Massive Intraperitoneal Hemorrhage Associated With Chronic Perforation of the Inferior Vena Cava by an Infrarenal Filter: A Case Report With Call for Definitive Consensus Regarding Filter Positioning in Nonpregnant Women of Childbearing Age

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Introduction: Suprarenal placement of inferior vena cava (IVC) filters in women of childbearing age has been recommended largely based upon theoretic concerns for safety of the mother and fetus. However, cases of filter-related maternal and fetal injuries have not been previously reported. Instructions for use of commercially available permanent and retrievable IVC filters do not make distinctions based on age or sex. Although most IVC filters implanted in current practice are potentially retrievable, less than 50% are ever removed. We present the first report of serious maternal injury and fetal death resulting from uterine trauma related to chronic perforation of the IVC by an infrarenal filter, initially placed in a nonpregnant woman of childbearing age.

Methods: A 36-year-old nonpregnant woman was treated with chronic anticoagulation therapy (AT) because of recurrent episodes of pulmonary embolism (PE). She developed a retroperitoneal hemorrhage due to warfarin toxicity, at which point, an infrarenal Trapease IVC filter was placed. Indefinite AT with low-molecular-weight heparin was later initiated. Chronic perforation of the IVC by the filter was incidentally noted 2 years later. Filter removal by percutaneous means was contraindicated, and given her asymptomatic status, operative removal was not offered. One year later, at age 39, she became pregnant. At an estimated intrauterine pregnancy age of 24 weeks, after physical activity, the patient developed sudden, extreme abdominal and back pain with associated dyspnea. A pulmonary computed tomography angiogram demonstrated no PE but showed free intraperitoneal fluid. She became hemodynamically unstable, concurrent with dramatic fall in fetal heart rate.

Results: Laparotomy and caesarean section were immediately performed, but the fetus was not salvageable. Bleeding was noted from a laceration to the dome of the uterus and was closed with chromic suture. A tear was noted in the peritoneal membrane overlying the filter, with barbs and vertical struts of the filter freely exposed. The vertical struts and barbs of the filter were removed, but due to instability, complete removal of the filter and IVC reconstruction was not deemed safe. Instead, the filter-bearing IVC was wrapped with a vascularized, transmesocolic omental flap. The patient's hospital course, 13 days, was complicated by intraperitoneal abscess (drained percutaneously) and wound infection. Complete healing was achieved at 10 weeks postoperatively. The patient is doing well at 4 months. Chronic AT with low-molecular-weight heparin has been continued, and the patient advised to avoid future pregnancies.

Conclusions: Interaction between the gravid uterus and an infrarenally positioned IVC filter, presumed in the past to be a theoretic risk for IVC compression and thrombosis or perforation, is proven by this case to be a real risk. Although the filter in this case was a permanent type, use of an optional filter does not obviate this risk, because a large majority of optional filters are never removed. Societal consensus and device manufacturers should address this potential risk in guidelines for filter placement, positioning (preferably suprarenal), and emphasis on subsequent, planned filter retrieval when IVC filters are placed in nonpregnant women of childbearing age.

Minimally Invasive Management of Symptomatic Pulmonary Sequestration With an Aneurysmal Feeding Vessel: Coil Embolization Combined With Thorascopic Resection

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Introduction: Pulmonary sequestration is an uncommon developmental anomaly characterized by nonfunctioning lung tissue that does not usually communicate with the native bronchial tree and its blood supply is derived from a variety of systemic arterial sources. We present a case of a symptomatic pulmonary sequestration, complicated by an aneurysmal feeding vessel, treated with a combined minimally invasive endovascular and thorascopic approach.

Methods: The patient is a 35-year-old woman with a pulmonary sequestration of the right lower lobe. She had a history of recurrent pulmonary infections. A computed tomography scan to evaluate abdominal pain revealed a pulmonary sequestration of the medial aspect of the right lower lobe. The feeding vessel originated from the left gastric artery and was aneurysmal (1.8 cm) at the level of the diaphragm. A combined endovascular and thorascopic procedure was chosen. Through a common femoral artery access, the left gastric artery and feeding vessel was catheterized. Coil embolization was performed distal to the aneurysm and into the aneurysmal sac using detachable coils. Completion angiogram showed no flow in the aneurysm or feeding vessel. Thoracic surgery then proceeded with resection of the sequestration via video-assisted video-assisted thoracoscopy. A thickened pale area of lung that did not deflate with single-lung ventilation was identified (Video). The sequestration was resected completely.

Results: The patient's postoperative course was uneventful, and she has remained asymptomatic at 24 months.

Conclusions: Pulmonary sequestration is an uncommon developmental anomaly that may present with recurrent pulmonary infections. Resection is curative. We have speculated that the aneurysm was related to shearing of the feeding vessel as it penetrated the diaphragm. Combined endovascular and thorascopic treatment represents a minimally-invasive alternative to conventional open thoracotomy.

Interleukin-1β Pathway Antagonism Prevents and Treats Experimental Aortic Aneurysms

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Introduction: Interleukin-1β (IL-1β) is a proinflammatory cytokine elevated in both human and experimental abdominal aortic aneurysms (AAAs). IL-1β signals the inflammatory cascade through binding the interleukin-1 receptor (IL-1R). The study objective was to evaluate pharmacologic opposition of IL-1β signaling using the recombinant IL-1R antagonist anakinra for prevention and treatment of experimental AAAs.

Methods: To evaluate AAA prevention with anakinra, four groups of 8- to 10-week-old male C57Bl/6 mice ($n = 7$/group) underwent subcutaneous placement of continuous-release osmotic pumps filled with escalating doses of anakinra. All mice underwent aortic elastase perfusion 3 days after anakinra pump placement. Maximal aortic dilation was measured 14 days after elastase perfusion. Aortic samples were evaluated with immunohistochemistry for macrophages, neutrophils, and elastin. IL-1β protein levels were measured by enzyme-linked immunosorbent assay. To determine if treatment with anakinra could inhibit aneurysm progression once an AAA was initiated or a small AAA existed, 8-to- 10-week-old male C57Bl/6 mice underwent elastase perfusion, followed by osmotic pump placement 3 days or 7 days afterward (7 per group for day 3 and 5 per group for day 7). Pumps were filled with anakinra or vehicle as a control. Aortic dilation was measured at harvest, and tissue was analyzed with immunohistochemistry for macrophages, neutrophils, elastin, and IL-1β.

Results: Increasing doses of anakinra resulted in a stepwise attenuation in aortic dilation, with mean aortic dilations of 86.3% ± 5.7% for vehicle only, 74.9% ± 5.9% for 10 mg/kg/d anakinra, 56.8% ± 3.3% for 30 mg/kg/d anakinra, and 48.3% ± 4.6% for 100 mg/kg/d anakinra ($P < .05$ for 30 mg/kg/d and 100 mg/kg/d vs vehicle by analysis of variance). Escalating doses of anakinra pretreatment also corresponded with a dose-dependent decrease in macrophage and neutrophil infiltration, as well as elastin degradation compared with vehicle-treated mice at 14 days. Aortic dilation significantly correlated with IL-1β protein levels ($R = .575$; 95%